



## **Process for the reduction of carbon monoxide and carbonyl sulfide emissions**

**Description of Technology:** This invention relates to a process for reducing carbon monoxide (CO) and carbonyl sulfide (COS) emissions.

### **Patent Listing:**

1. **US Patent No. 6,602,819**, Issued on August 5, 2003, "Process for the reduction of carbon monoxide and carbonyl sulfide emissions"

<http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetacgi%2FPTO%2Fsearch-bool.html&r=1&f=G&dl=50&col=AND&sd=PTXT&s1=6,602,819.PN.&OS=PN/6,602,819&RS=PN/6,602,819>

**Market Potential:** A process for chlorinating titanium-containing materials in a fluidized bed reactor is known. Suitable processes are disclosed in patents U.S. Pat. Nos. 2,446,181; 2,701,179; 3,591,333; and 3,883,636. In such processes, chlorine, particulate coke, particulate titanium-bearing materials, chlorine and optionally oxygen or air, wherein at least one of these contains sulfur, are fed into a fluidized bed reactor under conditions which chlorinate the titanium and many of the other metallic impurities. Gaseous titanium tetrachloride, other metallic chlorides, carbon monoxide (CO), carbonyl sulfide (COS), carbon dioxide (CO<sub>2</sub>) and other gaseous products exit the fluidized bed reactor. The gaseous titanium tetrachloride produced can then be separated from the other metal chlorides and impurities and oxidized to titanium dioxide, a white pigment, or further processed to produce titanium metal.

There is a need for an efficient catalytic process for the oxidation of carbon monoxide to carbon dioxide in the presence of carbonyl sulfide and also to simultaneously oxidize carbonyl sulfide to sulfur oxides.

### **Benefits:**

- Is an efficient catalytic process for the oxidation of carbon monoxide to carbon dioxide
- Oxidize carbonyl sulfide to sulfur oxides

### **Applications:**

- Reduces carbon monoxide and carbonyl sulfide in emissions

### **Contact:**

Delaware Economic Development Office  
Direct: (302) 577-8477, Fax: (302) 577-8499